

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CA2005/000465

A. CLASSIFICATION OF SUBJECT MATTER  
IPC(7): F16H 55/52, F16H 7/02, F16H 35/02, F16F 15/26, F02B 67/06

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
F16H 55/52, F16H 7/02, F16H 35/02, F16F 15/26, F02B 67/06;

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
Kent's Mechanical Engineers' Handbook, Design and Production, Sections 14 and 15 (Gearing, Mechanical Power Transmission)

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)  
Delphion, Techsource, Inpadoc, key words: pulley, wheel, non-circular, profile, oval, diameter, expandable, adjustable.

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| X         | CA 2 463 715 (Gajewski) 05 June 2003, (05-06-2003)<br>*whole document*             | 15 to 16              |

[ ] Further documents are listed in the continuation of Box C.

[ x ] See patent family annex.

|   |  |
|---|--|
| * Special categories of cited documents :   | "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  |
| "A" document defining the general state of the art which is not considered to be of particular relevance  | "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone   |
| "E" earlier application or patent but published on or after the international filing date   | "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art |
| "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "&" document member of the same patent family  |
| "O" document referring to an oral disclosure, use, exhibition or other means  |  |
| "P" document published prior to the international filing date but later than the priority date claimed  |  |

Date of the actual completion of the international search  
11 July 2005 (11-07-2005)

Date of mailing of the international search report  
27 July 2005 (27-07-2005)

Name and mailing address of the ISA/CA  
Canadian Intellectual Property Office  
Place du Portage I, C114 - 1st Floor, Box PCT  
50 Victoria Street  
Gatineau, Quebec K1A 0C9  
Facsimile No.: 001(819)953-2476

Authorized officer  
B. A. Dmochowski P. Eng.  
(819) 997-2798

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CA2005/000465

| Patent Document<br>Cited in Search Report | Publication<br>Date | Patent Family<br>Member(s) | Publication<br>Date |
|---|---------------------|----------------------------|---------------------|
| CA2463715                                 | 05-06-2003          | AU2002333137 A1            | 10-06-2003          |
|   |                     | BR0214257 A                | 21-09-2004          |
|   |                     | CN1592825 A                | 09-03-2005          |
|   |                     | DE20220367U U1             | 24-07-2003          |
|   |                     | EP1448916 A1               | 25-08-2004          |
|   |                     | HU0401957 A2               | 28-01-2005          |
|   |                     | JP2005510677T T            | 21-04-2005          |
|   |                     | US2003104886 A1            | 05-06-2003          |
|   |                     | WO03046413 A1              | 05-06-2003          |
|   |                     | ZA200403118 A              | 20-05-2004          |

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

|  |   |   |                  |
|--|---|---|------------------|
| Applicant's or agent's file reference<br>703491PCT   | <b>FOR FURTHER ACTION</b>   |   | See item 4 below |
| International application No.<br>PCT/CA2005/000465   | International filing date ( <i>day/month/year</i> )<br>30 March 2005 (30.03.2005) | Priority date ( <i>day/month/year</i> )<br>02 April 2004 (02.04.2004) |                  |
| International Patent Classification (8th edition unless older edition indicated)<br>See relevant information in Form PCT/ISA/237 |   |   |                  |
| Applicant<br>LITENS AUTOMOTIVE PARTNERSHIP   |   |   |                  |

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).
2. This REPORT consists of a total of 5 sheets, including this cover sheet.  
  
In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input checked="" type="checkbox"/> | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

|   |   |
|---|---|
| The International Bureau of WIPO<br>34, chemin des Colombettes<br>1211 Geneva 20, Switzerland | Date of issuance of this report<br>04 October 2006 (04.10.2006)   |
| Facsimile No. +41 22 338 82 70  | Authorized officer<br><br><p style="text-align: center; font-weight: bold;">Athina Nickitas-Etienne</p> e-mail: pt04@wipo.int |

PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

WIPO 13/10

To:  
IMAI, JEFFREY T.  
Magna International Inc.  
337 Magna Drive  
AURORA, Ontario  
Canada, L4G 7K1

**PCT**

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY  
RECEIVED 07 AUG 2005  
(PCT Rule 43bis.1) PCT

Date of mailing (day/month/year) 27 July 2005 (27-07-2005)

Applicant's or agent's file reference  
703491PCT

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
**PCT/CA2005/000465**

International filing date (day/month/year)  
30 March 2005 (30-03-2005)

Priority date (day/month/year)  
02 April 2004 (02-04-2004)

International Patent Classification (IPC) or both national classification and IPC  
IPC(7): F16H 55/52, F16H 7/02, F16H 35/02, F16F 15/26, F02B 67/06

Applicant  
**LITENS AUTOMOTIVE PARTNERSHIP ET AL**

1. This opinion contains indications relating to the following items :

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Box No. I   | Basis of the opinion   |
| <input type="checkbox"/> Box No. II             | Priority   |
| <input type="checkbox"/> Box No. III            | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability   |
| <input type="checkbox"/> Box No. IV             | Lack of unity of invention   |
| <input checked="" type="checkbox"/> Box No. V   | Reasoned statement under Rule 43bis.1(a)(I) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> Box No. VI             | Certain documents cited  |
| <input checked="" type="checkbox"/> Box No. VII | Certain defects in the international application   |
| <input type="checkbox"/> Box No. VIII           | Certain observations on the international application  |

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/CA  
Canadian Intellectual Property Office  
Place du Portage I, C114 - 1st Floor, Box PCT  
50 Victoria Street  
Gatineau, Quebec K1A 0C9  
Facsimile No.: 001(819)953-2476

Date of completion of this opinion  
18 July 2005 (18-07-2005)

Authorized officer  
**B. A. Dmochowski P. Eng.**  
(819) 997-2798

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/CA2005/000465

Box No. I      Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed

☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ on paper

☐ in electronic form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in electronic form

☐ furnished subsequently to this Authority for the purposes of search.

3 ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statement that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/CA2005/000465

Box No. V Reasoned statement under Rule 43bis.1(a)(I) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

I. Statement

|                               |        |                             |     |
|-------------------------------|--------|-----------------------------|-----|
| Novelty (N)                   | Claims | <u>1 to 14 and 17 to 19</u> | YES |
|                               | Claims | <u>15 and 16</u>            | NO  |
| Inventive step (IS)           | Claims | <u>1 to 14 and 17 to 19</u> | YES |
|                               | Claims | <u>15 and 16</u>            | NO  |
| Industrial applicability (IA) | Claims | <u>1 to 19</u>              | YES |
|                               | Claims | <u>none</u>                 | NO  |

2. Citations and explanations :

CA 2 463 715 (Gajewski) 05 June 2003 (05-06-2003)

Gajewski discloses a synchronous drive apparatus and a method of operating and constructing the apparatus. In Figure 1 there is shown a crankshaft sprocket with a non-circular profile having a major axis 20 and a minor axis 21. The axes are in the range between 90 to 180 degree.

**NOVELTY AND INVENTIVE STEP**

Claims 1 to 14 and 17 to 19 meet the criteria set out in PCT Article 33 (2, 3) because the prior art does not teach or fairly suggest a pulley system comprising a drive assembly extending from a hub and being able to change a rim configuration from circular profile to non-circular profile and/or from non-circular to circular profile.

Claims 15 and 16 do not meet criteria set out in PCT Article 33 (2) because Gajewski discloses device comprising sprocket with a non-circular profile. In the automotive industry majority of sprockets, pulleys etc. are mountable on a driving shaft and are marked for orienting a hub in a predetermined position.

**INDUSTRIAL APPLICABILITY**

All claims meet criteria set out in PCT Article 33(4) since the device and method can be made and use in the automotive industry.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/CA2005/000465

**Box No. VII**      **Certain defects in the international application**

The following defects in the form or contents of the international application have been noted :

The abstract does not comply with the PCT Rule 8.1(d), which requires that each main technical feature mentioned in the abstract and illustrated by a drawing shall be followed by a reference sign, placed between parentheses.

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

WIPO 13/10

To:  
**IMAI, JEFFREY T.**  
Magna International Inc.  
337 Magna Drive  
AURORA, Ontario  
Canada, L4G 7K1

PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

PCT

Date of mailing (day/month/year) 27 July 2005 (27-07-2005)

Applicant's or agent's file reference  
**703491PCT**

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
**PCT/CA2005/000465**

International filing date (day/month/year)  
30 March 2005 (30-03-2005)

Priority date (day/month/year)  
02 April 2004 (02-04-2004)

International Patent Classification (IPC) or both national classification and IPC  
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Applicant  
**LITENS AUTOMOTIVE PARTNERSHIP ET AL**

1. This opinion contains indications relating to the following items :

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Box No. I   | Basis of the opinion   |
| <input type="checkbox"/> Box No. II             | Priority   |
| <input type="checkbox"/> Box No. III            | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability   |
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**B. A. Dmochowski P. Eng.**  
(819) 997-2798



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☐ contained in the international application as filed.

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/CA2005/000465

Box No. V Reasoned statement under Rule 43bis.1(a)(I) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

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|                               | Claims | <u>15 and 16</u>            | NO  |
| Inventive step (IS)           | Claims | <u>1 to 14 and 17 to 19</u> | YES |
|                               | Claims | <u>15 and 16</u>            | NO  |
| Industrial applicability (IA) | Claims | <u>1 to 19</u>              | YES |
|                               | Claims | <u>none</u>                 | NO  |

2. Citations and explanations :

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/CA2005/000465

**Box No. VII**      **Certain defects in the international application**

The following defects in the form or contents of the international application have been noted :

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From the INTERNATIONAL BUREAU

**PCT**NOTIFICATION CONCERNING  
SUBMISSION OR TRANSMITTAL  
OF PRIORITY DOCUMENT

To:

IMAI, Jeffrey, T.  
Magna International Inc.  
337 Magna Drive  
Aurora, Ontario L4G 7K1  
ETATS-UNIS D'AMERIQUE

(PCT Administrative Instructions, Section 411)

|   |  |
|---|--|
| Date of mailing (day/month/year)<br>20 June 2005 (20.06.2005) |  |
| Applicant's or agent's file reference<br>703491PCT            | IMPORTANT NOTIFICATION   |
| International application No.<br>PCT/CA2005/000465            | International filing date (day/month/year)<br>30 March 2005 (30.03.2005) |
| International publication date (day/month/year)               | Priority date (day/month/year)<br>02 April 2004 (02.04.2004)             |
| Applicant<br>LITENS AUTOMOTIVE PARTNERSHIP et al              |  |

1. By means of this Form, which replaces any previously issued notification concerning submission or transmittal of priority documents, the applicant is hereby notified of the date of receipt by the International Bureau of the priority document(s) relating to all earlier application(s) whose priority is claimed. Unless otherwise indicated by the letters "NR", in the right-hand column or by an asterisk appearing next to a date of receipt, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
2. (If applicable) The letters "NR" appearing in the right-hand column denote a priority document which, on the date of mailing of this Form, had not yet been received by the International Bureau under Rule 17.1(a) or (b). Where, under Rule 17.1(a), the priority document must be submitted by the applicant to the receiving Office or the International Bureau, but the applicant fails to submit the priority document within the applicable time limit under that Rule, **the attention of the applicant is directed** to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
3. (If applicable) An asterisk (\*) appearing next to a date of receipt, in the right-hand column, denotes a priority document **submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b)** (the priority document was received after the time limit prescribed in Rule 17.1(a) or the request to prepare and transmit the priority document was submitted to the receiving Office after the applicable time limit under Rule 17.1(b)). Even though the priority document was not furnished in compliance with Rule 17.1(a) or (b), the International Bureau will nevertheless transmit a copy of the document to the designated Offices, for their consideration. In case such a copy is not accepted by the designated Office as the priority document, Rule 17.1(c) provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

| <u>Priority date</u>       | <u>Priority application No.</u> | <u>Country or regional Office<br/>or PCT receiving Office</u> | <u>Date of receipt<br/>of priority document</u> |
|----------------------------|---------------------------------|---|---|
| 02 April 2004 (02.04.2004) | 60/558,922                      | US  | 15 June 2005 (15.06.2005)                       |

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Authorized officer

Serge RUBY (Fax 338-8995)

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